PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE APPLICATION OF

JACK C. KELLEY

SERIAL NO.: 10/091,722

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EXAMINER: E. MCAVOY

GROUP ART UNIT: 1764

TITLE: ENGINE LUBRICANT USING MOLYBDENUM DITHIOCARBAMATE AS AN ANTIOXIDANT TOP TREATMENT IN HIGH SULFUR BASE STOCKS

Wickliffe, Ohio

Hon. Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

DECLARATION UNDER 37 C.F.R. §1.131

I, Jack C. Kelley, declare as follows:

Faxed Clm 9-29-03

A. I am the applicant of the above-identified patent application and inventor of the subject matter described and claimed therein.

B. Prior to October 25, 1999 I conceived the idea of preparing a composition as set forth in claim 1 of the present application, which was likewise reduced to practice prior to October 25, 1999. This conception and reduction to practice is evidenced by the following documents:

1. Internal memorandum from "LAWM" (Lewis Williams). Mr. Williams was at that time my supervisor, and this memorandum summarized lubricant formulations designed by me and results of performance tests conducted by me or under my direction. The cover memo

I certify that this correspondence is being deposited with the United States Postal Service as ✓ first class ___ express mail in an envelope addressed to Commissioner for Patents, POBox 1450, Alexandria VA 22313-1450[Exp Mail _____]
on August 8, 2003 By: Sheila E. Kelley

reported testing on formulations which contained 250 and 500 ppm of molybdenum as MoDTC (which is an abbreviation for molybdenum dithiocarbamate). The other components mentioned were an additive package [identifying number deleted] and an olefin copolymer ("OCP") viscosity modifier. Two tables attached to the memorandum report the detailed composition of two Mo-containing samples, one of which was designated "OS 128465." This material was nominally listed as "Moly @ 500 ppm" although the actual analytical analysis of indicated 0.044% Mo, that is, 440 ppm.

The formulations were prepared in a mixture of "Ashland 100N" and "Ashland 325N" basestocks. These were both high sulfur base stocks, as further outlined in the documents described below.

The detailed formulation of OS 129465 is available from the computer records of The Lubrizol Corporation. Each "OS Number" within Lubrizol's system is a distinct formulation or composition which does not change; any changes would result in the assignment of a new OS Number. The printouts of these records bear the date of the current request for the information (dates in 2003) as well as in certain case the various dates for the original entry of the data, and the like (those dates are effaced, but all are before October 25, 1999).

2. "Blend Request/Material Definition" record for OS 128465, also given "Material Name S010-4514-94-15," indicating date of data entry and so-called "Invent Date." Both of these dates (effaced) are prior to October 25, 1999. (A field for "Inventor" lists MW, one of my co-workers who actually submitted the request for preparation of the sample in question.. Entry of these initials for "Inventor" and the date for "Invent Date" was without advice from our legal department and should not be considered an indication of actual inventorship or date of invention.)

3. "Research Test Result," shows that S010-4514-04-15 , OS 128465, was subjected to the Sequence VE engine test and obtained a "Pass" rating for sludge and varnish deposits.

4. "Formula at Actual State" record for OS 128465, which indicates the general ingredient listing: 71.2 + 9.7 wt. % of two base stocks (oils) designated as 265-X-6052 and 265-X-6047. The other material of interest is designated S010-4514-94-14, which contains the other pertinent additives.

5. "Theoretical Analysis," which indicates that 265-X6052 is a Valvoline/Ashland 100 N oil (100%) which contains 0.2000 % sulfur, that is, 2000 ppm.

6. "Theoretical Analysis," which indicates that 265-X6047 is a Valvoline oil (100%) containing 0.3900 % sulfur, that is, 3900 ppm.

7. "Formula at Actual State," which indicates that S010-4514-04-14 (which contains the other pertinent materials) is in turn comprised of two materials, 88.8% S015-4041-94-17 and 11.2% S217-8226-05-01.

8. "Receive Outside Material," which indicates that S217-8226-9501 is "MO-DTC SAKURA LUBE #100" from Tonen, that is, a molybdenum dithiocarbamate.

9. "Theoretical Analysis," which indicates that the S217-8226-95-01 contains 4.15% Mo.

10. "Formula at Actual State," which indicates that S015-4041-94-17 is composed of a number of ingredients. Their internal code numbers are effaced and replaced by identifying letters. I have personally examined the printout and affirm that the internal code numbers correspond to the materials identified in the subsequent documents. In particular, the item identified as "c" is a succinimide dispersant, with a polyolefin substituent having $\overline{M}_n$ at least 1300; the item identified as "d" is a zinc dialkyldithiohphosphate derived from at least one secondary alcohol; and the items identified as "e-1" and "e-2" are oxidation inhibitors.

11. "Intermediate Chemical Information," which identifies component "c" as the succinimide dispersant, in particular "polyisobutenylsuccinic anhydride, product with polyethyleneamines."

12. "Intermediate Chemical Information," which identifies component "d" as a zinc alkyldithiophosphate from a secondary alcohol.

13. "Obsolete Intermediate Chemical Information," which identifies component "e-1" as dinonyldiphenylamine antioxidant.

14. "Obsolete Intermediate Chemical Information," which identifies component "e-2" as an olefin sulfide antioxidant.

Photocopies of the documents referred to above are attached. Each of the documents is dated prior to October 25, 1999, except as noted above. The early dates have been effaced from the copies submitted herewith. Likewise, certain internal corporate codes referring to products and intermediates have been replaced with reference letters (c, d, e, etc.) as described.

The documents taken together show that a lubricant formulation was conceived, prepared, and tested prior to October 25, 1999 meeting all the limitations of claim 1 of the present application.

C. **All the acts referred to above took place in this country.**

I further declare that all statements herein made of my own knowledge are true and all statements herein made on information and belief are believed to be true. I understand that willful false statements and the like are punishable by fine or imprisonment or both (18 U.S.C. 1001) and may jeopardize the validity of the application or any patent issuing thereon.

Jack C. Kelley

8-7-03 (date)